



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,420	09/26/2003	Khiem K. Nguyen	AMAT/8349/MASK/ETEC/ARNOL	8442

44257 7590 10/13/2006

PATTERSON & SHERIDAN, LLP  
3040 POST OAK BOULEVARD, SUITE 1500  
HOUSTON, TX 77056

EXAMINER

KACKAR, RAM N

ART UNIT PAPER NUMBER

1763

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/672,420

Applicant(s)

NGUYEN ET AL.

Examiner

Ram N. Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9,11-17,19,20,22 and 28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-9, 11-17, 19-20, 22 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/5/2006 has been entered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 5-9 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Herchen et al (US 6159297).**

Herchen et al disclose a process chamber (Fig 1) comprising a substrate support member (30), an interferometer end point detection system (175 and Col 9 lines 5-35) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end point system comprises a light source and a light detector (Col 10 lines 18-65) and a computer for calculating a spectra (Col 10 line 65 to Col 11 line10) and comparing to a stored characteristic value to determine the endpoint.

Art Unit: 1763

Regarding the limitation of test pattern and size of the substrate it is noted that reference to contents of an apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

Regarding the placement of the endpoint detection system, this is only a rearrangement of parts. Rearrangement of parts was held to have been obvious. *In re Japikse* 86 USPQ 70 (CCPA 1950). Similarly reversal of parts was held to have been obvious. *In re Gazda* 104 USPQ 400 (CCPA 1955).

**4. Claims 1, 3-4, 16-20, 22 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Taji et al (JP 57149732).**

Taji et al disclose a process chamber (Fig 1) comprising a substrate support member (1), an interferometer end point detection system (2-5 and Abstract) mounted below substrate support and configured to detect a peripheral region of the substrate.

**5. Claims 5-9 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yohei Yamazawa (JP 2001217227).**

Yohei Yamazawa disclose a process chamber (Fig 1) comprising a substrate support member (12), an interferometer end point detection system (Abstract) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end

Art Unit: 1763

point system comprises a light source and a light detector (23,22) and a computer for calculating a spectra (26 and 27).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1, 3-4, 16-20, 22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herchen et al (US 6159297) in view of Mihashi et al (JP 11058225).**

Herchen et al disclose a process chamber (Fig 1) comprising a substrate support member (30), an interferometer end point detection system (175 and Col 9 lines 5-35) mounted above and configured to detect a peripheral region of the substrate (Fig 1). Further the interferometer end point system comprises a light source and a light detector (Col 10 lines 18-65) and a computer for calculating a spectra (Col 10 line 65 to Col 11 line10) and comparing to a stored characteristic value to determine the endpoint.

Herchen et al do not disclose the detection of the end point from below the substrate. The decision to detect end point from top or bottom side, however, depends upon the orientation of etching and type of multilayers, on the substrate and convenience of mounting hardware.

Mihashi et al disclose detecting end point from the bottom side of the substrate (Abstract and Fig 1).

Art Unit: 1763

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to detect end point from below the substrate since decision to detect end point from top or bottom side depends upon the orientation of etching and type of multilayers, on the substrate and convenience of mounting hardware.

### ***Response to Arguments***

Applicant's arguments filed 9/5/2006 have been fully considered but they are not persuasive.

Applicant argues that the new limitation makes these claims distinguish over prior art. This is not so, in view of new art cited in this office action. Further the argument that in Mihashi the substrate is not looked at from the front side is not commensurate with the scope of the claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ram Kackar

Primary Examiner AU 1763